

Claims

1. A reporting module for distributing fluid transportation system sensor data to a plurality of receivers comprising:

an input for receiving sensor data from a fluid transportation system;

a memory coupled to the input and adapted to store the received sensor data, an instruction set, and an identification number, the identification number representative of the location reporting module;

a processor adapted to execute the instruction set, the instruction set instructing the processor to mark the sensor data with the identification number; and

a communication circuit coupled to the processor and the memory and adapted to transmit the marked data to receivers.

2. A reporting module as in Claim 1, wherein the reporting module is disposed within a fluid pressure regulator.

3. A reporting module as in Claim 2, wherein the reporting module is further adapted to process sensor data and create a control signal responsive to the sensor data which can be utilized by the fluid pressure regulator to control the flow of fluid through the fluid pressure regulator.

4. A reporting module as in Claim 1, wherein the reporting module is further adapted to calculate at least one of a gas transportation system parameter and a gas transportation system characteristic utilizing the received sensor data.

5. A reporting module as in Claim 1, wherein the plurality of receivers further includes at least one computer adapted for creating a database.

6. The reporting module as in Claim 5, wherein the communications circuit is adapted to transmit the marked sensor data to the at least one computer utilizing a wireless connection.

7. The reporting module as in Claim 5, wherein the communication circuit is adapted to transmit the marked sensor data to the at least one computer utilizing Internet protocol.

8. A reporting regulator for controlling gas line pressure and for communicating gas transportation system sensor data comprising:

a fluid throttling element;

a processor adapted to execute an instruction set, the instruction set instructing the processor to receive sensor data and to control the fluid throttling element in response to the sensor data;

a memory adapted to store the received sensor data and to store an attribute, the attribute representative of a feature of the sensor data, wherein the instruction set instructs the processor to mark the stored sensor data with the attribute;

a communication circuit coupled to the processor and adapted to transmit the marked data to a computer.

9. The reporting regulator as in Claim 8, wherein the instruction set and the processor are adapted to calculate one of a system parameter and a system characteristic utilizing the received gas transportation system data.

10. The reporting regulator as in Claim 9, wherein the system characteristic is a flow of gas through a predefined location.

11. The reporting regulator as in Claim 8, wherein the attribute is one of an identification number, a location, a time, a date, a data type, a sensor type, a priority, a MAC address, and an alarm status.

12. A data management system for a gas transportation system comprising:

a central computer adapted for creating a database; and

a plurality of reporting regulators, each reporting regulator including:

a throttling element for controlling a gas pressure within the gas transportation system; and

a processor adapted to receive data from at least one gas transportation system sensor, for marking the received data with a unique identification number and for transmitting the data responsive to an instruction set;

wherein the central computer is adapted to create a database utilizing the marks on the sensor data.

13. The data management system as in Claim 12, wherein the unique identification number is an origin of the sensor data.

14. The data management system as in Claim 12, wherein the central computer is further adapted to calculate one of system performance and a system parameter utilizing the received data.

15. The data management system as in Claim 12, wherein the central computer is adapted to sort the marked data responsive to user commands.

16. The data management system as in Claim 12, wherein the plurality of regulators further includes a first reporting regulator and a second reporting regulator, wherein the first reporting regulator is adapted to control functions of the second reporting regulator.

17. The data management system as in Claim 12, wherein the sensor data indicates a device status determined by at least one reporting regulator in the plurality of reporting regulators.

18. The data management system as in Claim 12, wherein the central computer is adapted to prepare a customer invoice utilizing the data in the database.

19. The data management system as in Claim 12, wherein the central computer transmits an instruction set to at least one reporting regulator in the plurality of reporting regulators, wherein the instruction set configures the operation of the at least one reporting regulator.

20. The data management system as in Claim 12, wherein the central computer is adapted to command the at least one reporting regulator to transmit the marked data to the database.

21. The data management system as in Claim 12, wherein the plurality of reporting regulators are adapted to transmit asset management information, and wherein the central computer is adapted to utilize the asset management information to create a maintenance report.

22. The data management system as in Claim 12, wherein the central computer is adapted to determine a graphical representation of gas transportation system events and to provide the graphical representation to a display device.

23. A method of managing gas transportation system data comprising:

assigning a unique electronic identification number to a reporting regulator;

receiving sensor data from a sensor adapted for operation in a gas transportation system;

controlling at least one pressure within the gas transportation system utilizing the received sensor data;

marking the received sensor data with an attribute; and

transmitting said marked sensor data to a central location.

24. The method of managing gas transportation system data as in Claim 23, wherein the step of transmitting further includes transmitting data utilizing a wireless Internet connection.

25. The method of managing gas transportation system data as in Claim 23, further including creating a database at a central location using the marked data.

26. The method of managing gas transportation system data as in Claim 25, further including the step of creating keys and links in the database as the marked data is stored.

27. A reporting regulator for controlling fluid pressure within a gas transportation system and for communicating gas transportation system data to a central location comprising:

an electrical interconnection;

at least a first port coupled to said electrical interconnection, the first port for receiving gas transportation system sensor data;

a memory coupled to said electrical interconnection for storing the received sensor data, said sensor data having at least one attribute;

a processor coupled to said electrical interconnection for uniquely marking the received sensor data with the at least one attribute; and,

a communication circuit coupled to the electrical interconnection for transmitting the marked data to a central location.

28. The reporting regulator as in Claim 27, further comprising a time clock coupled to the electrical interconnection to produce a time stamp, wherein the at least one attribute is the time stamp.

29. The reporting regulator as in Claim 27, further comprising a fluid throttling element coupled to the processor, the fluid throttling element for controlling a gas pressure at a fluid output port of the reporting regulator.

30. The reporting regulator as in Claim 27, further including:

a first pressure sensor;

a second pressure sensor; and

a throttle element position sensor, wherein said first and second pressure sensors and said throttle element position sensor are coupled to said processor, wherein said processor calculates flow volume through said reporting regulator utilizing data from said first and second pressure sensors and said throttle element position sensor and creates flow volume sensor data to be marked by the reporting regulator.

31. The reporting regulator as in Claim 27, wherein said communication circuit is adapted to transmit sensor data to a central location in response to a request for information by the central location.

32. The reporting regulator as in Claim 27, wherein, the instruction set is adapted to instruct the processor to conduct at least one mathematical process on the received sensor data.

33. The reporting regulator as in Claim 27, wherein the communication circuit transmits marked data at a predetermined time in response to the instruction set.

34. The reporting regulator as in Claim 27, further comprising a port identification number assigned to the at least first port, wherein the reporting regulator is further adapted to mark the sensor data with the port identification number corresponding to a port where the data is received.

35. The reporting regulator as in Claim 27, wherein said processor is adapted to mark the sensor data prior to storing the data in the memory.

36. The reporting regulator as in Claim 27, further including an initialization device wherein the initialization device is adapted to load the identification number into the memory prior to installing the reporting regulator into a gas transportation system.

37. The reporting regulator as in Claim 27, further including an initialization device wherein the initialization device is adapted to load the identification number into the memory after the reporting regulator is installed into a gas transportation system.

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